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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/077,548
Filing Date: February 14, 2002
Appellant(s): SURVE, SWATEE N.

Thomas Evans
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/15/2006 appealing from the Office action mailed 3/2/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-22, 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Post et al. '771.

Post discloses the *fabrication of electronic devices and circuits*, and in particular to the integration of such devices and circuits into textiles (fabrics, clothing material). Post discloses a fabric woven with non-conductive fibers in the warp and a conductive fiber in the weft. The conductive fibers 110 may be continuously adjacent along the weft (substrate). The leads of a resistor and a **capacitor** 122 (claim 11, 21), as well as the pins of an integrated circuit 124 are ***soldered to*** *single fibers of the fabric* 100 (col.4, lines 15-51). A fabric comprising a woven matrix of conductive fibers running in both directions can be used to capacitively or *electrically couple electronic components*, or *in sheet form can serve as an electrostatic antenna (claim 10, 20).*

To prevent fibers 110 from making unwanted contact as a result of folding, the fabric 100 may be provided with a non-conductive (insulating, protective, shield, claims 4-8, and 14-18) coating (e.g., a transparent acrylic coating that may be sprayed on) following affixation of the electronic components. Alternatively, an insulating layer 135 may be applied to one or both sides of the fabric 100. Insulating layer can, if desired,

be a textile with handling characteristics similar to those of the fabric 100 (col. 4, lines 58-65).

Electrically active textiles can also be created by sewing, embroidery or weaving of conductive material into a substantially non-conductive *fabric matrix or substrate*. (claim 3, 13) Typically, the threads are formed by spinning together fibers of a polymer (plastic, claim 24) such as KEVLAR® with fibers of a metal.

Another embodiment uses an elastic (e.g., foam, claim 25) panel to provide resistance in a switching mechanism for the circuit.

In yet another embodiment, the strips of conductor material may be coated with a semiconductor to form nonlinear thresholding elements at the overlap regions that prevent false contacts and/or phantom switching. The use of the semiconductor makes the electrical component a transistor, as recited by the applicant in claims 9 and 19.

Claim 23 (dependent to claim 12) is rejected under 35 U.S.C. 102(b) as being anticipated by Carroll.

Carroll discloses, " A microcomputer support and interconnection structure 10 in accordance with the present invention broadly includes a pliable garment 12, a plurality of microcomputer card pockets or enclosures 14, 16, 18, arranged in a predetermined pattern and a linking or signal transmission system 20. The garment 12 and the pockets 14, 16, 18 may be constructed of the same type of cloth or other pliable material or may be composed of different types of body conforming, pliable material such as are commonly used in the manufacture of garments."

"The garment 12 is composed of one or more layers 30 including structure defining a plurality of channels 32. The channels 32 extend between and into each of the pockets 14, 16, 18 in a predetermined sequence. The channels 32 present a characteristic width of sufficient size to encase a flat flexible substrate, such as ribbon cable common in the computer industry. The sequence of the channels 32 is dependent on the functional configuration of the microcomputer system chosen by the user. It will be understood that the channels 32 may be defined by a plurality of layers 30 or may be defined by a plurality of securing loops. The securing loops, for example, are made by securing string or thread to mesh or net fabric."

Carroll states that the support or interconnection layer can be composed of cloth or leather, as leather is a common, low price pliant material for garments.

The computer system and linking systems and channels of Carroll clearly are brought together to form electronic components and are clearly "formed over a surface of the piece of clothing". The term "forming" is extremely broad and has no special meaning assigned to it by the applicant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Post et al., in view of Miller 6,251,488.

Although Post teaches essentially all of the limitations of the instant invention there is no teaching of using a laser spray process to form the electrical components on the fibers and the use of a substrate over the fibers.

Miller does teach a laser spray deposition process to affix electronic components to surfaces such as metals, plastics, polymer resins, glass, and the like. The process allows the advantage of very precise direct deposition of electronic components into small areas. Synthetic fibers are polymer resins. And clearly fall within the technical area recited by Miller.

To further clarify the non-critical or obvious nature of using the spray deposition process, as stated in applicant's own specification on page 8, paragraph 28, and on page 9, lines 11-15, "It should be noted that the substrate 203, the protective layer 225, and the shielding layer 227 can each be created using the techniques disclosed in the Miller patent referenced above. Because these structures do not require a high degree of resolution, however, these structures can also be formed using less precise techniques, such as simply dipping the fiber 203 in a liquid form of the material to be used for the substrate 203, the protective layer 225, or the shielding layer 227. ***These structures can also be formed by, e.g., conventional gas deposition, spraying, or any other suitable technique (page 8, paragraph 28, instant specification).***"

"Thus those of ordinary skill in the art will understand that, according to the teachings of the invention, any structure that can be fabricated using the

Miller technique or other suitable technique can be formed on a fiber in such a way that the fiber may be subsequently woven into a fabric for clothing or other articles of wear (page 9, lines 11-15, instant specification)."

This citation admits the obviousness of using the techniques of Miller or any other suitable process for depositing electronic components and a substrate onto fibers as recited in claims 2, 3.

In addition there is a clear teaching from Miller that the use of this direct deposition process is suitable for polymer resin surfaces (synthetic fibers are clearly polymer resin surfaces) and the advantage is a very precise method to deposit electronic components onto very small areas.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the Post article to use a spray deposition process as taught by Miller rather than soldering, for more precisely depositing electronic materials onto small areas such as fibers to be woven into fabric articles.

(10) Response to Argument

Applicant's arguments filed in the brief have been fully considered but they are not persuasive. Applicant argues that Post does not teach "forming an electronic component on either a fiber or over a surface of a piece of clothing material".

It is the examiner's position that Post clearly shows the forming of an electronic component on a fiber or over a surface of cloth material. Especially important disclosures from Post have been italicized above for emphasis, no new recitations have been added to the previous rejection.

This citation taken from the applicant's remarks, "...electronic components are then connected to the conductive fibers by, e.g., soldering..." This statement describes the forming of an electronic component over the surface of a fiber and therefore over a cloth material. The electronic components are soldered to the fabric and thus forms a new electronic component, which is equivalent to "forming on a surface of a piece of clothing material." as recited in the claims.

When using the broadest reasonable interpretation, Post clearly anticipates the limitation, "forming an electronic component on either a fiber or over a surface of a piece of clothing material.

The Examiner cites, Webster's dictionary for a definition of the word "on" recited in the independent claims. "On: used as a function word to indicate presence within the confines of"; Post discloses, "The leads of a resistor 120 and a capacitor 122, as well as the pins of an integrated circuit 124 are soldered to single fibers of the fabric 100 (col. 4, lines 35-40)." The soldering of electronic components clearly meets the definition of "forming electronic components on a fiber" and "over a clothing material" as the surface of the fibers is the surface of the clothing material. It appears applicant is assigning more to the term "forming" than is the broadest reasonable interpretation of the term. If applicant intends to recited specific construction requirements to the invention than the applicant should clearly and positively recite these requirements. The term "form" is extremely broad and presents almost no limiting process steps or structure to the claimed invention.

Applicant's argument with respect to claim 2 are not persuasive. The rejection modifies the Post patent with clear teachings from Miller as cited above. The examiner has cited applicant's specification only to highlight the non-critical nature with which applicant has presented the use of various suitable metal deposition processes. As well as the fact, that applicant admits that "one of ordinary skill in the art could use the Miller process or any other suitable technique" to deposit electronic components onto fibers to be woven into garments. This statement is not the basis for rejection, applicant's citation is only used to illuminate the non-criticality of the limitation.

Applicant's argument with respect to claim 23 is not persuasive, leather and artificial leather have been used as materials for all types of clothing to take advantage of leather's intrinsic properties (low cost, durability, aesthetic). The examiner as evidence has cited a wearable personal computer that teaches leather as a low cost and flexible material as a possible material. A wearable personal computer is clearly in the same problem solving area as the instant invention. Additionally, the use of leather or synthetic leather in all types of apparel is not novel.

(11) Related Proceeding(s) Appendix

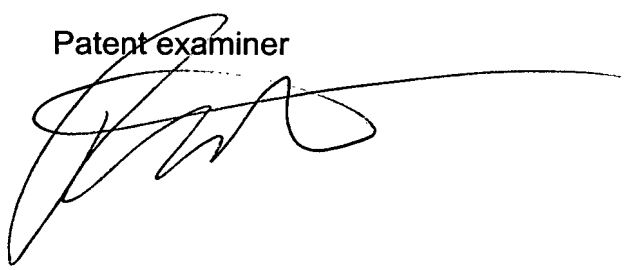
No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Robert Muromoto

Patent examiner



3/27/2007

Conferees:

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